Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

Please cancel claims 1-10 without prejudice to or disclaimer of the subject matter therein.

Claims 1-10. (Cancelled)

11. (New) A valve pin actuating mechanism for an injection molding apparatus comprising:

an actuator;

a linkage element rotatably connected to the injection molding apparatus and being rotatable in a plane of rotation by actuation of the actuator, the linkage element having a first end and a second end, wherein the linkage element is rotatably connected to the actuator at the first end and rotatably connected to the valve pin at the second end; and

a stop that is integral with the linkage element, the stop extending from a surface of the linkage element to form a bump, the bump defining an engagement surface,

wherein the linkage element is rotatable between a first position and a second position, wherein the engagement surface contacts a limit surface disposed on a component of the injection molding apparatus in the first position, and the engagement surface is spaced from the limit surface in the second position.

12. (New) The valve pin actuating mechanism of claim 11, wherein the limit surface is disposed on a valve bushing.

13. (New) The valve pin actuating mechanism of claim 11, wherein the stop is disposed adjacent to the first end of the linkage element.

14. (New) The valve pin actuating mechanism of claim 11, wherein the stop is disposed adjacent to the second end of the linkage element.

15. (New) The valve pin actuating mechanism of claim 11, wherein the engagement surface is domed.

16. (New) The valve pin actuating mechanism of claim 11, wherein the limit surface is domed.

17. (New) The valve pin actuating mechanism of claim 11, wherein the engagement surface is arcuate in a plane that is parallel to the plane of rotation.

18. (New) The valve pin actuating mechanism of claim 11, wherein the limit surface is arcuate in a plane parallel to the plane of rotation.

19. (New) A valve pin actuating mechanism for an injection molding apparatus comprising:

an actuator;

a linkage element rotatably connected to the injection molding apparatus and being rotatable in a plane of rotation by actuation of the actuator, the linkage element having a first end and a second end, wherein the linkage element is rotatably connected to the actuator at the first end and rotatably connected to the valve pin at the second end; and

a stop extending from a valve bushing of the injection molding apparatus, the stop having an end facing away from the valve bushing that defines an engagement surface,

wherein the linkage element is rotatable between a first position and a second position, wherein the engagement surface contacts a limit surface disposed on the linkage element in the first position in which the valve pin is in an open position, and the engagement surface is spaced from the limit surface in the second position in which the valve pin is in a closed position.

20. (New) The valve pin actuating mechanism of claim 19, wherein the stop is integral with the valve bushing and extends from a surface of the valve bushing to form a bump, the bump defining the engagement surface.

21. (New) The valve pin actuating mechanism of claim 19, wherein the stop is separate from the valve bushing and coupled thereto, the stop having an end that extends from a surface of the valve bushing and defines the engagement surface.

22. (New) The valve pin actuating mechanism of claim 21, wherein the position of the stop is adjustable between a first stop position and a second stop position, wherein

the angle of rotation of the linkage element is larger when the stop is in the first stop position than when the stop is in the second stop position.

23. (New) The valve pin actuating mechanism of claim 22, wherein the stop is threaded and is received in a threaded aperture in the valve bushing.

24. (New) The valve pin actuating mechanism of claim 19, wherein the engagement surface is domed.

25. (New) The valve pin actuating mechanism of claim 19, wherein the limit surface is domed.

26. (New) The valve pin actuating mechanism of claim 19, wherein the engagement surface is arcuate in a plane that is parallel to the plane of rotation.

27. (New) The valve pin actuating mechanism of claim 19, wherein the limit surface is arcuate in a plane parallel to the plane of rotation.

28. (New) A valve pin actuating mechanism for an injection molding apparatus comprising:

an actuator;

a linkage element rotatably connected to the injection molding apparatus and being rotatable in a plane of rotation by actuation of the actuator, the linkage element having a first end and a second end, wherein the linkage element is rotatably connected to the actuator at the first end and rotatably connected to the valve pin at the second end; and

a stop that is separate from the linkage element and coupled thereto, the stop extending from a surface of the linkage element and having an end facing away from the linkage element that defines an engagement surface,

wherein the linkage element is rotatable between a first position and a second position, wherein the engagement surface of the stop contacts a limit surface disposed on a component of the injection molding apparatus in the first position, and the engagement surface is spaced from the limit surface in the second position.

29. (New) The valve pin actuating mechanism of claim 28, wherein the limit surface is disposed on a valve bushing.

30. (New) The valve pin actuating mechanism of claim 28, wherein the stop is adjustably coupled to the linkage element between a first stop position and a second stop position, wherein the distance between the engagement surface and the linkage element is larger in the first stop position than in the second stop position.

31. (New) The valve pin actuating mechanism of claim 30, wherein a portion of the stop is threaded and is received in a threaded aperture disposed in the linkage element.

32. (New) The valve pin actuating mechanism of claim 27, wherein the stop is disposed adjacent to the first end of the linkage element.

33. (New) The valve pin actuating mechanism of claim 27, wherein the stop is disposed adjacent to the second end of the linkage element.

34. (New) The valve pin actuating mechanism of claim 27, wherein the engagement surface is domed.

35. (New) The valve pin actuating mechanism of claim 27, wherein the limit surface is domed.

36. (New) The valve pin actuating mechanism of claim 27, wherein the engagement surface is arcuate in a plane that is parallel to the plane of rotation.

37. (New) The valve pin actuating mechanism of claim 27, wherein the limit surface is arcuate in a plane parallel to the plane of rotation.